

WHAT IS CLAIMED IS:

1. A method of forming an insert molding, comprising the steps of:

5 holding an insert in a cavity within a die set by a movable hold member;

10 injecting molten resin into the cavity when the insert is held by the hold member;

15 separating the hold member from the insert at a given timing; and

heating a surface of the hold member to a temperature higher than a temperature of an inner surface of the die set, the hold-member surface contacting the molten resin, the die-set inner surface being exposed in the cavity.

20 2. A method as recited in claim 1, wherein the heating step comprises heating the hold member to a temperature equal to or higher than a melting point of the injected resin.

25 3. A method as recited in claim 1, wherein the separating step comprises separating the hold member from the insert after the injection of the molten resin into the cavity is completed.

4. A method as recited in claim 1, further comprising the step of cooling a first region of the molten resin in the cavity at a rate greater than a rate of cooling of a second region of the molten resin

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in the cavity, the second region adjoining the hold member, the first region being more distant from the hold member than the second region is.

5 5. A method as recited in claim 4, wherein the first region is thinner than the second region.

6. A method of forming an insert molding, comprising the steps of:

10 holding an insert in a cavity within a die set by a movable hold member;

injecting molten resin into the cavity when the insert is held by the hold member;

15 separating the hold member from the insert at a given timing; and

cooling a first region of the molten resin in the cavity at a rate greater than a rate of cooling of a second region of the molten resin in the cavity, the second region adjoining the hold member, the first region being more distant from the hold member than the second region is.

7. A method as recited in claim 6, wherein the first region is thinner than the second region.

25 8. A method as recited in claim 1, wherein the holding step comprises simultaneously holding an inner portion and an outer

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portion of the insert by the hold member, the inner portion being inserted into the outer portion.

9. An apparatus for forming an insert molding, comprising:  
5 a die set having a cavity;  
a hold member movably provided on the die set for holding an  
insert in the cavity;  
means for injecting molten resin into the cavity when the  
insert is held by the hold member;  
10 means for separating the hold member from the insert at a  
given timing; and  
means for heating a surface of the hold member to a  
temperature higher than a temperature of an inner surface of the  
die set, the hold-member surface contacting the molten resin, the  
15 die-set inner surface being exposed in the cavity.

10. An apparatus for forming an insert molding, comprising:  
a die set having a cavity;  
means for controlling a temperature of the die set;  
20 a hold member movably provided on the die set for holding an  
insert in the cavity;  
means for injecting molten resin into the cavity when the  
insert is held by the hold member;  
means for separating the hold member from the insert at a  
25 given timing; and  
means for heating the hold member.

11. An apparatus as recited in claim 9, wherein the hold member comprises a heat feeding portion and a body covering the heat feeding portion.

5 12. An apparatus as recited in claim 11, wherein the heat feeding portion comprising a heating member which generates heat when being supplied with an electric current.

10 13. An apparatus as recited in claim 9, wherein the hold member comprises a heat generating member and a body, the heat generating member being made of an electrically-conductive ceramic, the body surrounding the heat generating member, the body being made of an insulating ceramic.

15 14. An apparatus as recited in claim 9, wherein an inner surface of the die set comprises means for facilitating cooling of a first region of the molten resin in the cavity relative to cooling of a second region of the molten resin in the cavity, the die-set inner surface being exposed in the cavity, the second region adjoining the hold member, the first region being more distant from the hold member than the first region is.

20 15. An apparatus as recited in claim 14, wherein the first region is thinner than the second region.

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16. An apparatus as recited in claim 9, wherein the heating means

comprises means for heating the hold member to a temperature equal to or higher than a melting point of the injected resin.

17. An apparatus for forming an insert molding, comprising:

5        a die set having a cavity;

      a hold member movably provided on the die set for holding an insert in the cavity;

      means for injecting molten resin into the cavity when the insert is held by the hold member;

10        means for separating the hold member from the insert at a given timing; and

      means for cooling a first region of the molten resin in the cavity at a rate greater than a rate of cooling of a second region of the molten resin in the cavity, the second region adjoining the hold member, the first region being more distant from the hold member than the second region is.

18. An apparatus as recited in claim 17, wherein the first region is thinner than the second region.